

Remarks/Arguments

Examiner Chacko Davis is thanked for the thorough Office Action.

In the Claims

Claim 5 is amended to correct a typographical error. For support see claim 1.

Claim 21 is amended to correct a typographical error and provide proper antecedent basis.

No new matter is added.

CLAIM REJECTIONS:

The rejection of Claims 1, 5-6, and 11-20, under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,936,707 (Nguyen et al).

The rejection of Claims 1, 5-6, and 11-20, under 35 U.S.C. 102(b) as being anticipated by U. S. Patent No. 5,936,707 (Nguyen et al) is acknowledged. Reconsideration and withdrawal of the rejection is respectfully requested in view of the arguments below.

Amended claim 1 states: (emphasis added)

1. (PREVIOUSLY PRESENTED) A method for forming a photoresist pattern on a prescribed film, said photoresist pattern having a multi-level profile formed from exposure to light transmitted through a reticle having a multi-level profile, wherein the reticle includes one or more films overlying the reticle substrate to partially transmit and shift the phase of incident light, the reticle substrate passing all incident light and **the partially transmitting phase shift film transmitting approximately 20% to 70% of incident light and shifting the phase about 180 degrees in transmission through the partially transmitting film, and** an opaque film overlying sections of the partially transmitting film, the opaque film blocking light so that all incident light is attenuated, the method comprising the steps of:

a) exposing a light sensitive photoresist film, having a predetermined thickness, to light transmitted through the reticle for a predetermined amount of time, with light being transmitted through the reticle substrate exposing a first photoresist area to a first dosage, with light being transmitted through the partially transmitting film exposing a second photoresist area to a second, intermediate dosage, and with light being transmitted through the remaining opaque film exposing a third photoresist area to a third dosage; and

b) developing the photoresist film exposed in step (a) to form a photoresist profile having an opening in the first photoresist area, the photoresist profile having the photoresist predetermined thickness in the third photoresist area, and the photoresist profile having an intermediate thickness, between the predetermined thickness and zero, in the second photoresist area, whereby light introduced to the reticle transmits at least three intensities of light to transform the photoresist substrate into a profile of at least two thicknesses and an opening.

Applicant's parent claim 12 states: (emphasis added)

12. (ORIGINAL) A reticle through which at least three intensities of incident light are passed to define a multi-level profile on a light sensitive photoresist surface, the reticle comprising:
- a) a first transmission level film producing transmitted light of a first intensity;
- b) a second transmission level film producing **transmitted light of a second, intermediate, intensity less than the first intensity, and retarding the phase of the transmitted second intensity of light approximately 180 degrees;** and
- c) a third transmission level film producing transmitted light of a third intensity less than the second intensity, whereby the light transmitted through the reticle with the first intensity exposes a first photoresist area to a first dosage, the light transmitted with the second intensity exposes a second photoresist area to a second dosage, and the light transmitted with the third intensity exposes a third photoresist area to a third dosage.

Parent claims 1, 6 and 12 differentiates over and is non-obvious over US 5,936,707(Nguyen et al.) for at least the following reasons.

Applicants' claim 1 states that the "partially transmitting phase shift film" is a 180 degree phase shift layer. Claim 1 states:

the partially transmitting phase shift film transmitting approximately 20% to 70% of incident light and **shifting the phase about 180 degrees** in transmission through the partially transmitting film, and

Also see applicants' figure 1 below that shows the partially transmitting phase shift film 46 transmitting approximately 20% to 70% of incident light with 180 degree shift. See Spec. p. 7, LL 21-25.

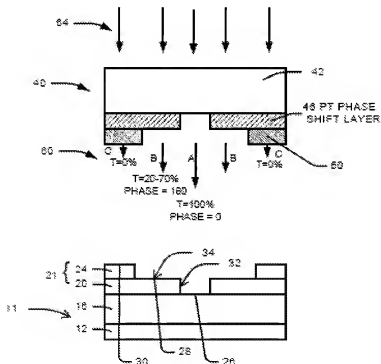


FIGURE 1

Nguyen, in contrast, teaches directly against the applicant's **180 degree** "partially transmitting phase shift film "by Nguyen specifically teaching a **90 degree phase shift layer**. See Claim 1, Line 15, claim 2, step (b), Nguyen Col. 7, Line 38, see col. 7, L 30 to 38. Nguyen teaches against changing Nguyen's 90 degree phase shift.

The instant Office Action dated May 7, 2006, page 6, Line 1, posits that Nguyen

"Nguyen, in col 4, lines 24-43, discloses using a half-tone film that transmits light with a phase shift of about 180".

However, Nguyen, in col. 4, lines 4-30, in the prior art section discusses prior art Levenson and Kobayashi, states (emphasis added):

The above disclosures reveal a reticle constructed of a transparent substrate made of a quartz material to transmit substantially all incident light. The reticle is constructed with a half-tone, or phase shifting film over the substrate to shift the phase of transmitted light. Over the half-tone layer is an opaque film to substantially block transmitted light. Through the use of phase shifting, to produce destructive interference, these reticles produce light at substantially two intensities, 100% intensity and 0% intensity, to form a single-level photoresist mask as is well known in the art. Alternately, it can be said that the reticle produces light at a single intensity (100% transmission), and otherwise blocks (0% transmission) the light. Phase shifting performed with the single level photoresist mask is for the purpose of more clearly defining features, such as vias, and to reduce the effects of diffraction. Typically, conventional half-tone material is chosen with regard to its phase shifting characteristics, as opposed to its light attenuation characteristics. Therefore, the half-tone films in the phase shifting reticles are chosen to phase shift transmitted light **180°** while providing substantially no attenuation, **as disclosed in the Levenson article**. Alternately, halftone films are chosen to phase shift transmitted light **180°** while substantially attenuating the intensity of transmitted light **as disclosed in Kobayashi, et al.**

As shown above, when read in context, Nguyen, in col. 4, lines 24 -30, In The Prior Art Section, mere states **that other references (NOT NGUYEN'S INVENTION)** have half tone layer with **180 phase shifts** with **no or full (0 or 100%) attenuation**. See bolded text above. These sentences pertain only to "the "Levenson article" and to "Kobayashi et al." See col. 4, L 24-30; See last 2 sentences above. NOTE THAT this section does not disclose the applicant's claim 1's, ""partially transmitting phase shift film transmitting approximately **20% to 70%** of incident light ".

If this rejection is maintained in an advisory action, the Applicant's representative respectfully requests that the examiner point out and "quote" the specific words in Nguyen that support that Nguyen's invention is a 180 degree shift layer.

Furthermore, Nguyen, in col 4, lines 31-43, states (emphasis added):

It would be advantageous to utilize the intensity attenuation characteristics of half-tone films in the production of photoresist masks.

It would also be advantageous to use the intensity attenuation characteristics of half-tone films to make photoresist masks, or patterns, having multi-levels to perform etching into IC substrate material to a plurality of depths.

It would be advantageous to combine the light intensity attenuation characteristics of a half-tone film to create photoresist masks with a plurality of thicknesses, with phase shifting characteristics of a half-tone film to create sharp features and to reduce errors caused by diffraction.

Accordingly, a reticle is provided through which incident light is passed to define predetermined areas of illumination on a light sensitive photoresist surface. The reticle comprises a first transmission level film producing transmitted light of a first intensity, a second transmission level film producing transmitted light of a second intensity greater than the first intensity, and a third transmission level film producing transmitted light of a third intensity greater than the second intensity.

Second transmission level film transmits more than approximately 10%, but less than approximately 90%, of incident light, whereby the attenuation characteristics of the second transmission level film are approximately mid-way between the first and third transmission level film attenuation characteristics, such that the reticle, when directed to a light sensitive surface, forms at least three distinctive intensities on the illuminated areas of photoresist.

As shown above, Nguyen lines 31 – 43, discloses that Nguyen et al. invention is a half tone mask, but does not state what phase shift is used.

Furthermore, in the Nguyen's spec col 7, lines 30 to 38 and Nguyen's claims 1, 11 and 19, Nguyen states the Nguyen's second transmission film 54 is a **90** degree (NOT 180) phase shift layer.

The instant office action appear to be interpreting or arguing that Nguyen's prior art section's discussion (col. 4, lines 22 -29) of 0 or full attenuated 180 phase shift layers (which Nguyen is trying to improve upon by using Nguyen's second transmission layer 54 90 degree phase shift layer 54 Nguyen col. 7, line 35) is actually

discussing Nguyen's invention. However, no where in Nguyen col. 4, lines 22 -29 does Nguyen discuss his invention, only prior art.

NGUYEN teaches a 90 degree phase shift layer not a 180 phase shift.

Nguyen col 7, lines 30 to 38 describes Nguyen's second transmission level film 54 as shown below: (emphasis added).

Second transmission level film 54 retards the phase of light in a predetermined number of degrees whereby the phase difference between reticle transmission level films improves the resolution in transmitted light intensities to reduce constructive interference between adjacently illuminated areas of photoresist. **It is a feature of the invention that second transmission level film 54 retards the phase of transmitted light approximately 90°.**

Nguyen, col. 7, line 38 explicitly states the **"second transmission level film 54 retards the phase of transmitted light approximately 90°.** " This contrasts with applicant's claims 1, 6 and 12's **180 degree Phase Shift layer.**

For this reason and other reasons not elaborated on, Claim 1 is not anticipated by Nguyen and is non-obvious over Nguyen.

Applicant's parent claims 1, 6, 12, 17 and 19 and all their dependent claims are not anticipated by Nguyen et al.

All Applicants' parent claims (e.g., 1, 6, 12, 17 and 19) and all their dependent claims are not anticipated by Nguyen et al. **because all the applicant's parent claims contain the novel limitation of the "partially transmitting phase shift film " that shifts the phase by 180 degrees.**

In contrast, Nguyen teaches a **90 degree phase shift.** See Nguyen claim 1.

Claim 5 is not anticipated by Nguyen

Claim 5 states:

5. (ORIGINAL) The method of claim 1, which further includes etching in a single step, said photoresist film and said a dielectric layer under said photoresist film to form a dual damascene shaped opening in said dielectric layer;
said photoresist film and said dielectric layer have about the same etch rate.

Applicants' claim 5 depends from not anticipated and non-obvious claim 1 and is therefore not anticipated.

Furthermore, the office action, page 3 states:

Nguyen, in col 2, lines 66-67, in col 4, lines 35-38, discloses that dual damascene structure can be formed in the dielectric under layer in a single etching step such that the dielectric material under layer is etched at the same rate as the overlying multi-level photoresist (claim 5).

However, the cited paragraphs do not meet applicant's claim 5 limitations.

First, Nguyen et al. does not suggest claim 5's limitations.

The first cite, Nguyen, in col 2, lines 66-67, is in the prior art section, pertains to a publication. Nguyen does not appear state that this invention uses this method. See entire Nguyen specification and claims.

The second cite, col. 4, lines 35-38, does not meet applicant's claim 5.

Nguyen col. 4, lines 35-38, states:

It would be advantageous to combine the light intensity attenuation characteristics of a half-tone film to create photoresist masks with a plurality of thicknesses, with phase shifting characteristics of a half-tone film to create sharp features and to reduce errors caused by diffraction.

This does not meet applicant's claim 5 because the cite does not mention a photoresist layer with the same etch rate of the dielectric material.

Claim 6 is not anticipated by Nguyen

Applicants' claim 6 depends from not anticipated and non-obvious claim 1 and is therefore not anticipated.

Claim 14 is not anticipated by Nguyen

Applicants' claim 14 depends from not anticipated and non-obvious claim 1 and is therefore not anticipated.

Rejection of Claims 2-4, and 7-10, and 21 under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 5,936,707 (Nguyen et al) in view of U. S. Patent No. 6,482,554 (Matsunuma).

The rejection of claims 2-4, and 7-10, and 21 under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 5,936,707 (Nguyen et al) in view of U. S. Patent No. 6,482,554 (Matsunuma) is acknowledged. Reconsideration and withdrawal of the rejection is respectfully requested in view of the comments.

Applicant's Claims 2-4, and 7-10 state:

2. (ORIGINAL) The method of claim 1 wherein said light sensitive photoresist film is comprised of a lower photoresist layer and an upper photoresist layer; said lower photoresist layer is less sensitive to light than said upper photoresist layer.
3. (CURRENTLY AMENDED) The method of claim 1 wherein said light sensitive photoresist film is comprised of a lower photoresist layer and an upper photoresist layer; said lower photoresist layer is less sensitive to light than said upper photoresist layer between between about 5 and 10%.
4. (ORIGINAL) The method of claim 1 wherein said light sensitive photoresist film is comprised of a lower photoresist layer and an upper photoresist layer; said lower photoresist layer is less sensitive to light than said upper photoresist layer in a case where the layers are positive type or said lower photoresist layer is more sensitive to light than said upper photoresist layer in a case where the photoresist layers are negative type.
7. (ORIGINAL) The method of claim 6 wherein said photoresist film is comprised of a lower photoresist layer and an upper photoresist layer; said lower photoresist layer is less sensitive to light than said upper photoresist layer.
8. (ORIGINAL) The method of claim 6 wherein said photoresist film is comprised of a lower photoresist layer and an upper photoresist layer; said lower photoresist layer is less sensitive to light than said upper photoresist layer;

the sensitivity of the lower photoresist layer and the upper photoresist layer is adjusted so that :

- * the first intensity of light through the transparent substrate sensitizes both the lower and upper photoresist layers; and
- * the second intensity of light through the transparent substrate sensitizes only the upper photoresist layer; and
- * the third intensity of light through the opaque film does not sensitize the lower or the upper photoresist layer.

9. (ORIGINAL) The method of claim 6 wherein said photoresist film is comprised of a lower photoresist layer and an upper photoresist layer; said lower photoresist layer is less sensitive to light than said upper photoresist layer by between about 5 and 10%.

10. (ORIGINAL) The method of claim 6 which further includes: said photoresist film is comprised of a lower photoresist layer and an upper photoresist layer; said lower photoresist layer is less sensitive to light than said upper photoresist layer; and

transferring said pattern in said photoresist film by an etch into the surface of said substrate in a single etch step; the etch rate of said photoresist film and said substrate are about equal.

The primary reference, Nguyen et al., does not meet or suggest applicant's parent claims

As discussed above, Nugyen does not meet or suggest applicants' parent claims. Therefore, all dependent claims are also allowable.

The combination of U. S. Patent No. 5,936,707 (Nguyen et al) and U. S. Patent No. 6,482,554 (Matsunuma). is improper

The combination of U. S. Patent No. 5,936,707 (Nguyen et al) and U. S. Patent No. 6,482,554 (Matsunuma) is improper for many reasons.

First, there is no motivation to combine U. S. Patent No. 5,936,707 (Nguyen et al) and U. S. Patent No. 6,482,554 (Matsunuma).
MPEP 2143.01 states:

2143.01 Suggestion or Motivation To Modify the References

THE PRIOR ART MUST SUGGEST THE DESIRABILITY OF THE CLAIMED INVENTION

"There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art." *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58

(Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obvious was held improper.). The level of skill in the art cannot be relied upon to provide the suggestion to combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999).

The cited references do not suggest they be combined to meet applicants claimed method and mask. Both reference are complete to themselves.

There is no motivation to combine the references. Nguyen et al. does not acknowledge the problems identified and solved by the Matsunuma and visa versa.

Unsuggested Combinations: The prior art references do not contain any suggestions (express or implied) that they be combined, or that they be combined in the manner suggested.

References are individually Complete: Each reference is complete and functional in itself, so there would be no reason to use parts form or add or substitute parts to any reference.

Crowded art: Moreover, the invention is classified in a crowded art; therefore, a small step forward should be regarded as significant.

Furthermore, Matsunuma (no phase shift mask) teaches against using Nguyen et al.'s 90 degree partially transmitted PSM and applicant's 180 degree partially transmitted PSM. Matsunuma figures 4A to 4F, col. 9A to 9G; col. 6, L 26 to Col. 7, L 7; teach specifically a non-phase shift mask. No where in the patent does Matsunuma mention "phase" or "phase shift". The operations of a phase shift and non-shift masks are different and the photoresists have different requirements.

MPEP 2143.01 further states:

FACT THAT REFERENCES CAN BE COMBINED OR MODIFIED IS NOT SUFFICIENT TO ESTABLISH *PRIMA FACIE* OBVIOUSNESS

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)

Here, neither reference suggest the desirability of combination.

The fact no one has meet applicant's claim is a showing of non-obviousness.

If it was so obvious to combine Matsunuma with Nguyen et al to meet the applicant's claims, then why didn't someone do it before ? Matsunuma specifically uses a non-phase shift mask. Furthermore, Nguyen et al. issued in August 1999. Applicant's patent was filed in October 2003. Therefore, of the thousands of patents filed in the 1756 art unit in over 3 years, not one skilled in the art had the insight to combine the patents to attempt to meet applicant's claims 2-4 and 7-10.

For these reasons the combination of Matsunuma and Nguyen et al is improper and all claims are non-obvious.

Even if combined, the combination of references does not meet applicant's claims

Even if combined, the combination of references does not meet applicant's claims. For example, as explained above, Nguyen does not meet the applicants' parent claims with respect to the phase shift mask (PSM).

The Office action's reasons for combination are not convincing

The office action states:
Therefore, it would be obvious to a skilled artisan to modify Nguyen by employing the method of using two layers of photoresist as suggested by Matsunuma because Matsunuma, in col 5, lines 45-51, discloses that the dual layers of photoresist can be replaced with a thick single layer of photoresist, and vice versa, and Matsunuma, in col 6, lines 5-7, discloses that using a first photoresist film and a second photoresist film of differing sensitivities makes it possible to accurately control the film thickness.

However, this reason is not convincing and does not make a prima facia showing.

Matsunuma attempts to solve a problem identified by Matsunuma (Matsunuma, in col 6, lines 5-7, e.g., control thickness of photoresist). However, Nguyen does not attempt to

solve this Matsnuma photoresist thickness problem or any problem remotely related.
See entire Nguyen patent.

Claim 2 is non-obvious

Claim 2 depends from non-obvious claim 1.

Claim 3 is non-obvious

The instant office action pages 4 and 5 states (for the rejection of claims 2-4, and 7-10)

Matsunuma, in col 3, lines 29-60, in col 4, lines 5-44, discloses that the photoresist layer comprises a first photoresist film of low sensitivity and a second photoresist film, formed on the first photoresist film, of high sensitivity greater than that of the first photoresist film; and that the sensitivity of the first photoresist film is adjusted such that the first photoresist film and the second photoresist film is completely exposed through the first transmittance part (transparent portion of the mask substrate), the second intensity of light from the second transmittance part only sensitizes the second photoresist film and not the lower sensitive first photoresist film, and the third intensity of light of the third transmittance part (opaque region) does not sensitize neither the first photoresist film nor the second photoresist film.

The cited section of Matsunuma, do not disclose or suggest the following claim 3 limitation: "said lower photoresist layer is less sensitive to light than said upper photoresist layer between about 5 and 10%."

Claim 4 is non-obvious

Claim 4 depends from non-obvious claim 1. As stated above, the combination of references is improper and can only be done with the benefit of hindsight.

Claim 7 is non-obvious

Claim 7 depends from non-obvious claim 1. As stated above, the combination of references is improper and can only be done with the benefit of hindsight.

Claim 8 is non-obvious

Claim 8 depends from non-obvious claim 1. As stated above, the combination of references is improper and can only be done with the benefit of hindsight.

Claim 9 is non-obvious

Claim 9 depends from non-obvious claim 1. As stated above, the combination of references is improper and can only be done with the benefit of hindsight.

Claim 10 is non-obvious

Claim 10 states:

10. (ORIGINAL) The method of claim 6 which further includes: said photoresist film is comprised of a lower photoresist layer and an upper photoresist layer; said lower photoresist layer is less sensitive to light than said upper photoresist layer; and transferring said pattern in said photoresist film by an etch into the surface of said substrate in a single etch step; the etch rate of said photoresist film and said substrate are about equal.

Claim 10 contains similar limitation as does claim 5. The instant office action makes the same arguments for the non-obviousness of claims 5 and 10. Claim 10 is non-obvious for the same reasons give above for claim 5.

Furthermore, Reference Matsunuma teaches against claim 10's limitation of the "the etch rate of said photoresist film and said substrate are about equal." Matsunuma, col. 6, LL 10 to 17 teaches that the first and second photoresist layer have different etch characteristic (e.g., etch rates). See figures 5A thru 5D and accompanying text (showing the etch rate differences between the 1st resist layer, the second resist layer and the dielectric layer.

Therefore, claim 10 is submitted to be allowable over the cited references and reconsideration and allowance are respectfully solicited.

(PREVIOUSLY PRESENTED) claim 21 is non-obvious over the combination of references

claim 21 states.

21. The method of claim 1 which further includes
said light sensitive photoresist film is comprised of a lower photoresist layer and an upper photoresist layer;
etching in a single step, said light sensitive photoresist film and said a dielectric layer under said photoresist film to form a dual damascene shaped opening in said dielectric layer;
said lower photoresist layer, said upper photoresist layer and said dielectric layer have about the same etch rate.

Reference Matsunuma teaches against claim 21. Matsunuma, col. 6, LL 10 to 17 teaches that the first and second photoresist layer have different etch characteristic (e.g., etch rates). See figures 5A thru 5D and accompanying text (showing the etch rate differences between the 1st resist layer, the second resist layer and the dielectric layer.)

Therefore, claim 21 is non-obvious.

Applicant's reply to the "response to arguments" section in the OA page 5.

The three main issues are labeled A) B) and C) .

**A) The instant Office Action dated May 7, 2006, page 6, Line 1, posits that
Nguyen**

"Nguyen, in col 4, lines 24-43, discloses using a half-tone film that transmits light with a phase shift of about 180".

As discussed in greater detail above in **this response on pages 12 to 15**, the Nguyen prior art section specifically discusses prior art Levenson and Kobayashi et al. See specifically Nguyen, col. 4, L 23-30, These sentences do not pertain to Nguyen. Nor does Nguyen suggest his 90 Degree layer be modified. Nguyen further teaches away by teaching and claiming a 90 Degree layer. See NGUYEN col. 14, line 15, claim 1.

If this rejection is maintained in an advisory action, the Applicant's representative respectfully requests that the examiner point out and "quote" the specific words in Nguyen that support that Nguyen's invention is a 180 degree shift layer. (Specifically what words in Nguyen, in col 4, lines 24-43).

B) The instant office action p. 6 states:

B) Applicants argue that Nguyen does not disclose that the photoresist layer and the dielectric layer have the same etch rate. Nguyen, in col 6, lines 58-64, and in figures 4-5, discloses an etch step wherein the photoresist film pattern 62, and the dielectric film 54 are etched during the second etch (one etch rate, removed exposed portions of the dielectric at 63, and photoresist pattern 62, i.e., both resist and dielectric material has the same etch rate) resulting in the etching of the photoresist pattern (completely removed) 62, and corresponding removal of the exposed dielectric material (exposed portion, reference 63), resulting in the structure of figure 5, i.e., the masked portion of the dielectric was not etched at the second etch

This section appear to refer to the rejection of e.g., claim 5 and 21 which states:

5. (CURRENTLY AMENDED) The method of claim 1, which further includes etching in a single step, said photoresist film and said a dielectric layer under said photoresist film to form a dual damascene shaped opening in said dielectric layer;
said photoresist film and said dielectric layer have about the same etch rate.

Claim 5 relates to a method using the claim 1 reticle (see claim 1, lines 2 to 11) (with a partially transmitting Phase shift film with a 180 degree shift) to expose a photoresist layer and form a photoresist profile over a dielectric layer and (e.g., Semiconductor) substrate. See spec. p. 13 L 22 to p. 14 L 27; figures 5A to 5D. See especially P. 14. L 4-5.

In contrast, the Nguyen section cited in the Office Action, col 6, lines 58-64, and figures 4-5, show Nguyen's method to make a reticle, not a method to use the reticle to expose photoresist and etch holes in an underlying dielectric layer. Importantly, Nguyen, in col 6, lines 58-64, and in figures 4-5, does not disclose nor suggest using the applicant's claimed reticle to expose the resist shown in figures 4-5. Nguyen, in col. 6, lines 58-64, and in figures 4-5 is merely showing a method to make Nguyen's 90 degree shift reticle.

C) The Office Action page 6 states:

C) Applicants argue that Matsunuma does not teach phase or phase-shift. Matsunuma is not depended upon to teach phase shift. Nguyen is depended upon to disclose phase-shift.

This related to the rejection of Claims 2-4, and 7-10 under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 5,936,707 (Nguyen et al) in view of U. S. Patent No. 6,482,554 (Matsunuma).

Applicant's representative respectfully submits that it is posited that the combination of Matsunuma and Nguyen is non-obvious because Matsumuna does teach (or suggest) using a mask like Nguyen. Matsumuna uses a Non-phase shift mask in contrast to Nguyen. The Matsumuna and Nguyen masks operate on different principles (e.g, Nguyen 90 degree PSM (Nguyen Claim 1) uses interference.) Matsumun does not mention using Nguyen's 90 degree PSM mask.) Therefore, it is not obvious to combine them. As discussed in detail above, using Matsumua to

attempt to meet applicant's claims 2-4 and 7-10 (e.g., dual resist layer) could only have been done using hindsight.

PENDING CLAIMS

It is believed that all the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper. and the amendment of any claim does not necessarily signify concession of the unpatentability of the claim prior to its amendment.

CONCLUSION

In conclusion, reconsideration and withdrawal of the rejections are respectfully requested. Allowance of all claims is requested. Issuance of the application is requested.

It is requested that the Examiner telephone the undersigned attorney at (215) 670-2455 should there be anyway that we could help to place this Application in condition for Allowance.

Charge to Deposit Account

The Commissioner is hereby authorized to apply any fees or credits in this case, which are not already covered by check or credit card, to Deposit Account No. 502018 referencing this attorney docket. The Commissioner is also authorized to charge any additional fee under 37 CFR §1.16 and 1.17 to this Deposit Account.

Respectfully submitted,

/William J. Stoffel REG # 39,390/

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